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EXTENDED REPORT

Do psychological factors predict outcome in both low-back pain and shoulder pain?

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Background and Objective: Psychological factors are assumed to predict persistent or recurrent musculoskeletal pain. The influence of psychological factors in patients with low-back pain (LBP) or shoulder pain was explored to study whether there is similarity regarding the factors that predict persisting pain and disability.

Methods: Patients presenting in primary care with a new episode of shoulder pain or non-specific (sub)acute low back pain (LBP) were enrolled in a prospective study. In both patient groups, pain catastrophising, distress, somatisation and fear-avoidance beliefs were measured at baseline. Primary outcome measures at 3 months were (1) persistent symptoms, and (2) <30% reduction in functional disability. Multivariate logistic regression analysis was used to study the associations between psychological factors and outcome.

Results: A total of 587 patients with shoulder pain and 171 patients with LBP were enrolled in the study. In patients with shoulder pain, most associations of psychological factors with outcome were weak and not significant. Only in patients with longer symptom duration at baseline (≥ 3 months) were higher scores on catastrophising significantly associated with persistent symptoms ($p=0.04$). In patients with LBP, psychological factors were more strongly associated with poor outcome, although most associations were not significant.

Conclusion: Psychological factors, with the exception of fear-avoidance beliefs, are more strongly associated with persistent pain and disability in patients with LBP than in those with shoulder pain. This seems to indicate that in a primary care population the influence of psychological factors on outcome may vary across patients with different types of pain.

Biopsychosocial models provide a general explanation for the influence of psychological factors in patients with chronic musculoskeletal pain.^{1–2} The associations between pain, disability and psychological factors have been widely studied, but mainly in cross-sectional research^{3–5} or in patients with chronic pain syndromes.^{6–7} Research among patients with more acute pain, preferably in a primary care setting, is needed to establish the role of psychological factors in the progression to chronic pain and disability. If such associations can be confirmed, early identification and subsequent modification of these factors may prevent chronic disability.^{8–10}

Research on the development of chronic pain has mainly been carried out in low-back pain (LBP), but similar mechanisms are assumed to be of importance even in other musculoskeletal pain problems such as shoulder pain.¹¹ As yet, the influence of psychological factors in shoulder pain has rarely been dealt with. Prospective cohort studies in primary care have mainly studied the influence of disease characteristics, showing that high pain intensity at baseline is the strongest predictor of a poor outcome.¹²

The objective of this cohort study was to investigate the associations of psychological factors with the risk of persistent symptoms and disability at 3 months after consulting a general practitioner for a new episode of shoulder pain or LBP. We specifically studied the influence of pain catastrophising, fear-avoidance beliefs, distress and somatisation, as these are assumed to be of potential importance in the development of chronic pain problems,¹³ and may be susceptible to intervention. We compared the influence of these factors in LBP and shoulder pain to study whether there is similarity regarding the factors that predict persisting pain and disability.

METHODS

Study population
Shoulder pain

Patients who consulted their general practitioner (in total, 103 general practitioners) for a new episode of shoulder pain between January 2001 and June 2003 were eligible for participation in the study.¹⁴ Patients were selected if they were aged ≥ 18 years, and had not consulted their general practitioner for the afflicted shoulder in the preceding 3 months. Exclusion criteria included the presence of fractures or dislocation in the shoulder region; dementia; insufficient knowledge of the Dutch language; and systemic disease that may explain the shoulder symptoms (eg, rheumatic disease, neoplasms, neurological or vascular disorders).

Low-back pain

In the same time period, participants with LBP were recruited by 32 general practitioners (involved in 21 practices) who participated in a cluster-randomised controlled trial on the treatment of LBP.¹⁵ Patients were selected if they were aged between 18 and 65 years, and the duration of LBP was <12 weeks at presentation, or if there was an exacerbation of mild symptoms of back pain. Exclusion criteria were: LBP caused by specific pathological conditions (metastasis, osteoporosis, rheumatoid arthritis or fracture), current treatment by any healthcare professional other than the general practitioner, insufficient language skills and pregnancy. All patients receiving usual care (as their general practitioners had been

Abbreviations: LBP, low-back pain; RMDQ, Roland-Morris Disability Questionnaire; SDQ, Shoulder Disability Questionnaire

randomised to the control group) were selected for the current study. Data collection for both cohorts was approved by the medical ethics committee of the VU University Medical Centre (Amsterdam, The Netherlands).

Management

All patients received usual care by their general practitioner. For both LBP and shoulder pain, the Dutch College of General Practitioners has issued national guidelines. The shoulder pain guideline recommends to provide information on the prognosis of shoulder pain, advice regarding provoking activities, and stepwise treatment consisting of analgesics, non-steroidal anti-inflammatory drugs, corticosteroid injection or referral for physiotherapy.¹⁶ The LBP guideline advises a wait-and-see policy with pain drugs and gradual uptake of activities for acute LBP (duration <6 weeks).¹⁷ For subacute LBP (6–12-weeks' duration), the guideline recommends referral for exercise therapy, physiotherapy or manual therapy in case of persistent disability.

Psychological factors

Within a few days after recruitment, all participants were visited at home by a research assistant. During the visit, the participants completed a baseline questionnaire including questions on psychological factors. In patients with shoulder pain, catastrophising was measured with the 6-item Catastrophising subscale of the Pain Coping and Cognition List (1–6 points).¹⁸ In patients with LBP, the six-item subscale Catastrophising of the Coping Strategies Questionnaire (0–36 points) was used.¹⁹ In both populations, fear-avoidance beliefs were assessed using the four-item physical activity subscale of the Fear-Avoidance Beliefs Questionnaire (0–24 points).²⁰ Distress and somatisation were measured in both patient groups using two 16-item subscales of the Four-Dimensional Symptom Questionnaire.²¹ Scores on all scales were standardised to scores between 0 and 100 to facilitate comparison. When scores were missing, at least 75% of the items on subscales had to be completed to calculate a total score. Otherwise, complete case analyses were performed.

Outcome measures

Outcomes were measured by postal questionnaires at 3 months after consultation. The two main outcome measures were perceived recovery and disease-specific functional disability. In both populations, perceived recovery was measured on a 7-point Likert scale.²² Patients who did not report full recovery or very large improvement were denoted as having "persistent symptoms".

Disability in patients with shoulder pain was measured using the 16-item Shoulder Disability Questionnaire (SDQ).²³ LBP disability was assessed by the 24-item Roland-Morris Disability Questionnaire (RMDQ).²⁴ Both SDQ and RMDQ scores were standardised to scores ranging between 0 (no disability) and 100 (severe disability). A reduction of 30% of the baseline disability score has been suggested as a minimal important change for the RMDQ.^{25–26} Research in patients with shoulder pain has shown that a reduction of 18–19 points can be considered to be an important change.²⁷ Given mean baseline scores of 60–75 points,^{14–28} this agrees with a 30% reduction. Those reporting <30% reduction on either the SDQ or the RMDQ were denoted as having "persistent disability".

Other potential predictors

Psychological factors were studied as independent predictors of outcome after 3 months. Age, sex, pain intensity at baseline (0–10 points rating scale), duration of symptoms and the presence of additional musculoskeletal complaints were considered as potential prognostic covariates in both patients with shoulder

pain and those with LBP. Furthermore, in patients with shoulder pain, a gradual or acute onset of pain, and repetitive movements (on at least 2 days a week) were considered as potential covariates, whereas in patients with LBP, the presence of radiating symptoms was included in the analyses. These factors have previously been shown to predict the outcome of shoulder pain^{14–29–30} or LBP^{31–34} in primary care populations. Finally, the following treatment variables were considered: corticosteroid injection in patients with shoulder pain, and referral for physiotherapy, exercise therapy or manual therapy in patients with either shoulder pain or LBP.

Analysis

Logistic regression analysis was used to investigate the association between psychological factors and the risk of persistent symptoms or disability. Associations were expressed as odds ratios (OR) along with 95% confidence intervals (CI).

Separate analyses were conducted for each of the four psychological factors. Firstly, univariate analyses were carried out to calculate the unadjusted association between the psychological factor and outcome. The linearity of the associations was studied. Factors were categorised if they did not show a linear association with outcome, using similar cut-off points for shoulder pain and LBP if possible. Next, these associations were adjusted for each of the other potential predictors (covariates). A manual forward selection procedure was used to sequentially include covariates in the model. Covariates that changed the multivariate regression coefficient of psychological factors by >10% were retained in the model. Separate models were built for patients with shoulder pain and those with LBP.

Finally, interaction was studied between each of the psychological factors and duration of symptoms at baseline. Psychological factors were considered likely to be stronger predictors of outcome in patients with a longer duration of symptoms (≥ 3 months) compared with those with a more recent onset of pain. As none of the participants with LBP had chronic pain at baseline, this interaction was studied only in shoulder pain. In case of a significant association of the interaction term with the outcome ($p < 0.10$), stratified analyses were carried out for patients with short or long duration of symptoms at baseline. All analyses were performed using SPSS V.12.1.

RESULTS

The study included 587 patients with shoulder pain and 171 with LBP. As the LBP study excluded patients with a symptom duration of >3 months, we present separately the baseline characteristics of patients with shoulder pain with a duration <3 months (table 1). The populations were similar with respect to sex, educational level and pain intensity, but patients with LBP were younger (mean age 42.0 years *v* 51.5 years for all patients with shoulder pain) and more often reported paid work (84.2% *v* 59.6%). More patients with shoulder pain reported musculoskeletal pain elsewhere (71.0% *v* 36.3% in those with LBP).

Both groups scored similar on fear-avoidance beliefs (median score 58.3 for shoulder pain and 62.5 for LBP), but baseline scores for pain catastrophising, distress and somatisation were lower in patients with shoulder pain. Adjustment for differences in baseline characteristics (age, pain elsewhere, paid work, symptom duration and previous pain episodes) between LBP and shoulder pain did not affect the differences in psychological scores (data not shown).

Outcome after 3 months

Nearly all patients (164/171, 96%) with LBP completed the follow-up questionnaire at 3 months follow-up. The response rate was 88% (517 of 587) in patients with shoulder pain.

Table 1 Baseline characteristics of patients with shoulder pain or low-back pain, also presented separately for patients with shoulder pain and a symptom duration <13 weeks at baseline

	SP (n = 587, all)	SP (n = 344) duration <13 weeks	LBP (n = 171, all) duration <13 weeks
Demographic and work variables			
Age (years), mean (SD)	51.5 (14.0)	50.5 (14.4)	42.0 (12.0)
Sex, n (% female)	295 (50.3)	167 (48.5)	81 (47.4)
Educational level, n (%)			
Low	210 (36.3)	111 (32.6)	56 (33.1)
Middle	234 (40.4)	141 (41.5)	72 (42.6)
High	135 (23.3)	88 (25.9)	41 (24.3)
Paid work, n (%)	350 (59.6)	216 (62.8)	144 (84.2)
Repetitive movements (≥2 days/week), n (%)	384 (65.4)	213 (61.9)	–
Disease characteristics			
Duration of current episode, n (%)			
0–2 weeks	83 (14.2)	83 (24.1)	105 (61.4)
3–6 weeks	122 (20.8)	122 (35.5)	49 (28.7)
6–13 weeks	139 (23.7)	139 (40.4)	17 (9.9)
≥13 weeks	242 (41.3)	–	–
Gradual onset, n (%)	362 (61.7)	174 (50.6)	–
Previous episodes, n (%)	348 (59.3)	184 (53.5)	138 (81.2)
Pain radiating below the knee, n (%)	–	–	25 (14.6)
Musculoskeletal pain elsewhere, n (%)	417 (71.0)	232 (67.4)	62 (36.3)
Pain intensity, mean (SD)	4.8 (2.3)	4.5 (2.4)	4.8 (1.9)
Disability (SDQ or RMDQ, 0–100) mean (SD)	59.9 (24.2)	57.7 (26.3)	50.8 (20.7)
Psychological factors			
Catastrophising (PCCL or CSQ, 0–100) median (IQR)	21.7 (12.5–35.0)	21.7 (11.7–33.5)	30.6 (16.7–41.7)
Distress (4DSQ, 0–100), median (IQR)	0 (0–6.3)	0 (0–6.3)	25.0 (11.7–43.8)
Somatisation (4DSQ, 0–100), median (IQR)	6.3 (0–15.6)	6.3 (0–12.5)	25.0 (15.6–34.4)
Fear-avoidance beliefs (FABQ, 0–100), median (IQR)	58.3 (45.8–75.0)	58.3 (47.9–75.0)	62.5 (50.0–79.2)

CSQ, Coping Strategies Questionnaire for patients with low-back pain;¹⁹ 4DSQ, Four-Dimensional Symptoms Questionnaire;²¹ FABQ, Fear-Avoidance Beliefs Questionnaire;²⁰ IQR, interquartile range; PCCL, Pain Coping and Cognitions List for patients with shoulder pain;¹⁸ RMDQ, Roland-Morris Disability Questionnaire;²⁴ SDQ, Shoulder Disability Questionnaire; SP, shoulder pain.²³

Dropout patients with shoulder pain were younger and more often had higher distress scores (>6 points) at baseline.

Table 2 shows that more patients with shoulder pain reported persistent symptoms (60.2% v 45.7% in LBP). The median disability scores were higher in patients with shoulder pain, and a larger proportion showed <30% reduction in disability. Pain intensity scores at follow-up were slightly higher in patients with LBP.

Association of psychological factors with outcome

Table 3 presents the association of baseline psychological scores with persistent shoulder symptoms or disability after 3 months. As all associations were non-linear, psychological factors were categorised. The results show that associations of all psychological factors with outcome were weak and not significant.

Significant interaction with symptom duration ($p < 0.10$) was found only for catastrophising, and only for persistent symptoms as outcome measure. In patients with a long symptom duration at baseline (≥3 months), higher scores on pain catastrophising (>20 points) were significantly associated with persistent symptoms (OR adjusted for pain 1.99, 95% CI 1.04 to 3.82, $p = 0.04$), whereas in patients with a shorter symptom duration, a reverse association was found (OR adjusted for pain 0.58, 95% CI 0.35 to 0.95, $p = 0.03$).

Table 4 presents the association of psychological factors with outcome in patients with LBP. As baseline distress scores were higher in patients with LBP than in those with shoulder pain, different cut-off points had to be used to construct categories containing sufficient numbers. Associations of psychological factors with outcome seemed stronger in patients with LBP, especially for higher scores on pain catastrophising, somatisation and distress. After adjustment for confounding, a significant association was found only for pain catastrophising with persistent symptoms ($p = 0.03$).

Treatment

At baseline, most patients received a wait-and-see policy with pain drugs. In the first 3 months, 151 (26%) patients with shoulder pain received physiotherapy or manual therapy, and 99 (17%) reported treatment with local infiltration of a corticosteroid. Of the 171 patients with LBP, 73 (43%) were referred for therapy during follow-up. Treatment was not significantly associated with outcome in both cohorts.

DISCUSSION

This prospective cohort study among patients with shoulder pain or LBP in general practice showed a significant association of pain catastrophising with persistent symptoms in patients

Table 2 Persistent symptoms, pain and disability 3 months after consultation for patients with shoulder pain and low-back pain

	SP (n = 517)*	LBP (n = 164)*
Persistent symptoms, n (%)	311 (60.2)	75 (45.7)
Pain intensity (0–10), median (IQR)	2 (0–4)	3 (2–5)
Disability score (0–100), median (IQR)	30.8 (0–60.0)	8.3 (0–20.8)
Change in disability since baseline, mean (SD)	26.9 (31.6)	35.1 (24.7)
<30% reduction in disability n (%)	216 (41.8)	28 (16.4)

IQR, interquartile range; LBP, low-back pain; SP, shoulder pain.

*12% of patients with shoulder pain (n = 70) and 4% of patients with LBP (n = 7) did not return the follow-up questionnaire at 3 months or did not complete questions on main outcomes.

with (sub)acute LBP. Despite longer duration of pain at presentation and a poorer prognosis, baseline scores on psychological factors were much lower in patients with shoulder pain, and associations with outcome were weak and non-significant. Only in patients with a longer symptom duration at baseline did more catastrophising show an increased risk of persistent shoulder symptoms at follow-up.

Influence of psychological factors in shoulder pain

The most important finding of this study is that psychological factors seemed to be of little importance in the prediction of persistent shoulder pain. So far, few studies have investigated the role of psychological factors in shoulder pain, even though it has been proposed that psychological factors may be equally important in different types of musculoskeletal pain.¹¹ One population-based study showed that distress predicted the outcome in patients with shoulder pain,³⁵ but these results could not be confirmed in this study. Psychological factors were of lesser importance than clinical characteristics such as

baseline intensity of pain, duration of symptoms or additional musculoskeletal problems. One may hypothesise that, in patients who consult the general practitioner, the symptoms are more severe than in a population-based sample, perhaps resulting from more serious physical pathology, and that in these patients psychological factors may be less important in predicting the outcome.

A recently conducted prospective cohort study among primary care patients with neck-shoulder pain showed that worrying was associated with poor outcome after 3 months of follow-up.³⁶ Further research may establish whether worrying or distress is especially important among patients with neck pain or combined neck-shoulder pain compared with those with shoulder pain only.

Influence of psychological factors in LBP

Our results strengthen the findings of previous research among patients with LBP, reporting significant associations between high levels of pain catastrophising, distress, or somatisation and persistent pain.^{13 32 37 38} Although often suggested as a potentially important predictor, associations between fear-avoidance beliefs and persistent pain were not strong. This finding seems to coincide with the results of a previous study among primary care patients with LBP.³⁷ These studies in primary care populations may indicate that fear-avoidance beliefs do not contain unique predictive qualities independent of other prognostic factors. Boersma and Linton showed that fear of movement was only associated with function in patients with LBP, with a symptom duration of >1 year.³⁹ This suggests that fear avoidance may be a consequence of chronic pain, rather than a predictor of the transition from acute to chronic pain.

As we were specifically interested in the independent contribution of each psychological factor, we adjusted the associations for other prognostic factors. One may argue that adjustment for pain intensity or a history of pain is not sensible, as the level of distress, somatisation or catastrophising is likely to depend on the duration, history or intensity of pain.⁴⁰

Table 3 Association of psychological factors with persisting symptoms and disability after 3 months in patients with shoulder pain

	Persisting symptoms		<30% reduction in disability	
	OR	95% CI	OR	95% CI
Pain catastrophising (v<20 points), n = 494*				
Crude 20–40	1.07	(0.72 to 1.60)	1.34	(0.90 to 1.99)
>40	1.19	(0.71 to 2.00)	1.32	(0.79 to 2.19)
Adjusted 20–40	0.97†	(0.63 to 1.50)	1.33‡	(0.88 to 1.99)
>40	0.94†	(0.52 to 1.68)	1.32‡	(0.78 to 2.24)
Distress (v<6 points), n = 515*				
Crude 6–12	1.14	(0.66 to 1.96)	1.41	(0.83 to 2.40)
>12	1.13	(0.72 to 1.79)	0.88	(0.56 to 1.39)
Adjusted 6–12	0.76†	(0.42 to 1.38)	1.30‡	(0.76 to 2.24)
>12	0.71†	(0.42 to 1.19)	0.76‡	(0.48 to 1.23)
Somatisation (v<15 points), n = 515*				
Crude 15–30	1.08	(0.68 to 1.73)	1.36	(0.85 to 2.15)
>30	2.13	(0.97 to 4.65)	1.70	(0.85 to 3.36)
Adjusted 15–30	0.89†	(0.54 to 1.49)	1.31‡	(0.81 to 2.11)
>30	1.46†	(0.63 to 3.42)	1.49‡	(0.74 to 3.01)
Fear-avoidance beliefs (v<50 points), n = 509*				
Crude 50–75	1.16	(0.78 to 1.73)	1.12	(0.75 to 1.67)
>75	1.16	(0.72 to 1.89)	1.11	(0.68 to 1.79)
Adjusted 50–75	1.22†	(0.79 to 1.88)	1.22‡	(0.81 to 1.83)
>75	1.08†	(0.63 to 1.85)	1.12‡	(0.68 to 1.85)

*Incidental missing values on psychological factors;

†Adjusted for baseline pain intensity and duration of symptoms;

‡Adjusted for duration of symptoms.

Table 4 Association of psychological factors with persisting symptoms and disability after 3 months in patients with low-back pain (n = 164)

	Persisting symptoms		<30% reduction in disability	
	OR	95% CI	OR	95% CI
Pain catastrophising (v<20 points)				
Crude 20–40	1.89	(0.89 to 3.98)	2.81	(0.84 to 9.40)
>40	2.41	(1.09 to 5.36)	4.88	(1.47 to 16.21)
Adjusted 20–40	2.00*	(0.93 to 4.30)	2.27†	(0.66 to 7.79)
>40	2.45*	(1.09 to 5.51)	3.31†	(0.93 to 11.85)
Distress (v<15 points)				
Crude 5–35	0.90	(0.42 to 1.94)	1.40	(0.42 to 4.72)
>35	2.02	(0.94 to 4.34)	3.94	(1.33 to 11.71)
Adjusted 15–35	0.80*	(0.37 to 1.76)	1.51†	(0.44 to 5.16)
>35	1.86*	(0.86 to 4.05)	2.99†	(0.97 to 9.23)
Somatisation (v<15 points)				
Crude 5–30	0.66	(0.29 to 1.48)	0.56	(0.16 to 1.99)
>30	2.30	(0.98 to 5.38)	2.77	(0.92 to 8.37)
Adjusted 15–30	0.63*	(0.27 to 1.43)	0.56†	(0.15 to 2.00)
>30	2.14*	(0.90 to 5.08)	2.45†	(0.79 to 7.60)
Fear-avoidance beliefs (v<50 points)				
Crude 0–75	1.29*	(0.61 to 2.71)	0.84†	(0.28 to 2.50)
>75	1.56*	(0.71 to 3.46)	2.17†	(0.78 to 6.02)
Adjusted 50–75	1.45*	(0.67 to 3.14)	0.77†	(0.25 to 2.34)
>75	1.58*	(0.70 to 3.53)	1.73†	(0.60 to 4.99)

*Adjusted for previous episodes of low back pain;

†Adjusted for baseline pain intensity.

Longitudinal research with repeated assessment of psychological factors, pain and disability in patients with acute pain is needed to deal with these assumptions, and to further unravel the longitudinal associations between psychological factors and pain.

Comparison of psychological factors in shoulder pain and LBP

The populations in this study were different at baseline: due to different selection criteria, the mean duration of symptoms was longer in patients with shoulder pain. Furthermore, patients with shoulder pain reported more additional musculoskeletal pain and somewhat higher disability scores. Consequently, we might expect higher scores on psychological factors. Yet, baseline scores were lower compared with patients with LBP, in particular for distress and somatisation. These differences could not be explained by other differences in baseline characteristics between patients with LBP and those with shoulder pain. More patients with LBP reported previous pain episodes. Inadequate beliefs and attributions of pain may become stronger when recurrences of pain occur, perhaps in particular when treatment of previous episodes has not been perceived as successful. A history of previous LBP episodes was indeed strongly associated with poor outcome.

The fear-avoidance and beliefs model has mainly been tested in patients with LBP exhibiting avoidance behaviour and decreased activity levels, but may be less applicable in pain and disability that is associated with task persistence and overuse.⁴¹ Many of our patients with shoulder pain did report overuse, often related to activities characterised by repeated movements. Vlaeyen and Morley⁴¹ suggest that people may (implicitly) use different “stop rules” which guide them in either persisting or terminating a given activity. In combination with the current mood, these stop rules may lead to either task persistence or task avoidance. Although overuse is generally considered to be associated with negative mood, in this model, a positive mood may also lead to overuse when inadequate stop-rules are used.⁴¹ Future studies may show whether the use of different stop-rules can explain differences in the influence of psychological factors between patients with LBP and those with shoulder pain.

Alternatively, one may hypothesise that, in a local pain problem such as shoulder pain, local pathology (eg, soft-tissue inflammation) may be part of the problem, whereas in non-specific LBP more central mechanisms may contribute to the persistence of pain. For example, research has shown that the function of the hypothalamic–pituitary–adrenal axis may be altered in patients with chronic LBP or chronic widespread pain,^{42–43} which may mediate the association between pain and psychological distress.

High scores on pain catastrophising predicted a poor outcome in patients with (sub) acute LBP and in patients with shoulder pain with a long symptom duration. Catastrophising is an exaggerated orientation towards pain stimuli, and is considered to be an inadequate coping strategy.⁴⁴ Future research may be aimed at the development and evaluation of interventions aimed at reducing pain catastrophising in patients with LBP or chronic shoulder pain in primary care. The finding that pain catastrophising was associated with a favourable prognosis in patients with more acute shoulder pain was unexpected and is difficult to explain. It is questionable whether these findings can be replicated in future research.

Methodological considerations

Drop-out among patients with LBP was very low, and was limited to 11% in the shoulder pain cohort. Although drop-out patients were younger and more often had higher distress scores, and the absolute differences in age and distress were small (<10 years, and <4 points for distress). Therefore, we consider it unlikely that these differences have strongly influenced the reported associations between psychological factors and outcome in shoulder pain. Different scales were used to measure pain catastrophising, which may have influenced our findings. However, the main finding of this study, indicating a stronger influence of psychological factors in patients with LBP compared with those with shoulder pain, was consistent across all four predictors.

The size of the shoulder pain cohort was more than adequate to detect relevant associations with statistical significance. As the LBP cohort was smaller, it is possible that the study lacked power to establish significant associations, especially for

distress and somatisation. It seems unlikely that lack of power explains the absence of significant associations for fear-avoidance beliefs, as associations were rather weak.

We may argue that the differences in study design may explain the baseline differences in psychological scores. The patients with shoulder pain participated in an observational study, giving a fair representation of patients consulting their general practitioner for a new episode of (non-traumatic) shoulder pain. Patients with LBP had been enrolled in a randomised trial, which usually generates a more selective and homogeneous study population. In this trial, however, no specific selection criteria other than duration of symptoms had been used. Furthermore, randomisation took place at the level of the practice, meaning that general practitioners in the control group were those who provided usual care to all their patients with LBP and had not been trained to provide any other treatment. Baseline characteristics of our cohorts were similar to those of cohorts in other observational studies on primary care. This increases the generalisability of the findings.

In conclusion, in our primary care population, psychological factors were more strongly associated with persistent pain and disability in patients with LBP than in those with shoulder pain. Despite a longer duration of pain at presentation and poorer prognosis, scores on most psychological factors were low in patients with shoulder pain, and associations with outcome were weak. This seems to indicate that the influence of psychological factors on outcome may vary across primary care patients with different types of pain.

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EULAR/EUROPEAN NEWS.....

European Training Curriculum for Rheumatology

CALL FOR CONTRIBUTIONS

The Rheumatology section of UEMS (Union Européenne des Médecins Spécialistes—<http://uems.net>) has started a profound revision of its recommendations on the Core Curriculum for Specialist Training.¹ This new version is intended to take into account modern perspectives of medical education, and especially to incorporate recent developments in rheumatology itself and its societal role.

The revision process will be undertaken by working groups within UEMS/Rheum throughout the first semester of 2007. The final document will be constructed

around the seven roles of the specialist physician as proposed by the CanMeds Project² and seek inspiration in well designed existing curricula (Denmark³; UK⁴; Canada⁵ and USA⁶).

All rheumatologists and interested institutions are invited to send in contributions in any form, including suggestions and criticism to the guiding documents referred above, guidelines from institutions working in the field or national regulations pertaining to this subject etc.

Please address any correspondence to: iben.petersen@mail.dk

We will be grateful for your insight and appreciate any contribution you may be able to provide us with.

José A. P. Da Silva
President

UEMS Section and Board of Rheumatology

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